CHAPTER 5

EXPLOSIVE TRAINING AID ACCOUNTABILITY, HANDLING, STORAGE, SAFETY, SECURITY, AND TRANSPORTATION

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5-1. General Explosive Safety Training. All personnel involved in training evolutions using the canine explosive scent kit shall be thoroughly trained in all aspects of explosive storage, safety, security, handling, and transportation. Annual training shall be conducted by Explosive Ordnance Disposal (EOD) personnel or qualified weapons department personnel. Upon completion of training, written documentation shall be forwarded to the primary custodian for inclusion into the explosive training aid accountability folder.

5-2. Explosive Qualification/Certification. All personnel required to handle explosives will be qualified/certified in the safe storage, transportation, and handling of explosives per reference (b). Qualified/certified personnel will be designated in writing by the commanding officer.

5-3. Explosive Standard Operating Procedures (SOPs). Written SOPs shall be developed prior to any operation involving explosives per references (c) and (d).

5-4. MN01 Canine Explosive Scent Kit. The MN01 canine explosive scent kit is a wooden box containing explosive training aids used for testing/training explosive detector dogs (EDDs). It is identified by a Department of Defense Identification Code (DODIC)/Navy Ammunition Logistics Code (NALC) and National Stock Number (NSN). The total explosive weight (net explosive weight) of the kit is 18 pounds. The following information pertains:

DODIC/NALC	NSN	Dimensions	Weight
MN01	1375-01-192-7411	35" long by 12.8" wide, by 10.5" deep	80 lbs.

The scent kit contains explosive training aids provided in individual M19A1 metal boxes maintained in the following order:

Explosive Component	DODIC/NALC	NSN	Amount
Water Gel	MY77	1375-01-180-5779	Six, ½ lb. sticks
Smokeless Powder	MY57	1375-00-772-1370	Two, 1 lb. cans
[1]Time Fuse	M670	1375-00-028-5246	Six, 5 ft. lengths
[2]Composition C-4	M023	1375-01-330-0749	Three, 1-1/4 lb. blocks
Trinitrotoluene (TNT)	M031	1375-01-329-7175	Six, ½ lb. blocks
Detonating Cord	M456	1375-01-332-9665	Six, 5 ft. lengths
Ammonium Nitrate Dynamite	M585	1375-00-096-3098	Six, ½ lb. sticks
Nitroglycerin Dynamite	M587	1375-00-096-3095	Six, ½ lb. sticks

[1] Time fuse is not included in Marine Corps Canine Explosive Scent Kits.

[2] One 1-1/4 lb. block of C-4 will be cut in half prior to shipment.

5-5. Requirements for Establishment of EDD Program. Guidelines for commands developing an EDD program are listed below:

a. Request a threat assessment from the local Naval Criminal Investigative Service (NAVCRIMINVSERV) office to determine if the need for an EDD program exists.

b. Ensure explosive storage facilities, per reference (c), are available for the storage of class/division 1.1 explosives.

c. Request 30,000 series ammunition/ordnance allowance, if not already established, to Commander, Naval Ordnance Center;

Code N41; Indian Head, MD via Commander, Naval Surface Warfare Center Crane Division; Code PM4; Crane, IN. The request will include the DODIC/NALC and NSN for the canine explosive scent kit and all components thereof.

5-6. Initial Distribution of MN01 Canine Explosive Scent Kit. Submit a requisition per reference (e), for a MN01 canine explosive scent kit. The command will receive the scent kit along with eight empty M19A1 containers to be used for transport of explosive components from the storage site to the training area. Components of the scent kit may be replaced one or more times.

5-7. Ordering Replacement Training Aids. The MN01 canine explosive scent kit and its components have a periodic safety inspection requirement, and a safety service life. Refer to reference (c) for the explosive inspection criteria and frequency. The requirements in reference (c) shall be included in the activities storage and issue SOPs. In addition to the requirements in reference (c), restrictions, suspensions, and limitations may be issued at any time against the kit/individual components. Reference (f) and Notices of Ammunition Restrictions provide this information. If the training unit retains custody of the explosives, and the unit is not on distribution for this publication, assure that the ordnance activity/ammunition stock point that issued the kit/component is advised of the kit's location. The dynamite components have a shelf life of 18 months from the date of manufacture, and must be replaced accordingly. The MN01 canine explosive scent kit is produced for initial distribution/special situations; therefore, is not normally a stocked item. Explosive materials in need of replacement due to contamination or loss of effectiveness may be ordered individually by submitting a requisition. Due to shipping and transportation restrictions, commands outside the continental United States needing several explosive component replacements, may order a complete scent kit.

5-8. Disposition of Unsafe or Unserviceable Explosives. EOD personnel shall be notified immediately of any explosives that are unsafe or suspect. Explosives that are unserviceable for training purposes due to contamination/loss of scent

effectiveness shall be turned in to the nearest ordnance facility where a determination will be made on the explosives serviceability and suitability for other explosive purposes.

5-9. Explosive Characteristics. Personnel associated with explosives shall be familiar with the physical characteristics of each type of explosive used; the sensitivity to shock, heat, electricity, moisture; the corrosive agent of each of the explosives, and the hazards related to each type of explosive used. Additionally, EDD team personnel should familiarize themselves with improvised explosive devices (IEDs).

a. Water Gels. Water gels/blasting slurries are a new commercial group of blasting agents. They consist of nitrocellulose mixtures, with/without TNT, and are generally white/grayish in appearance. A gel-like powdered metal, such as aluminum, may be added to increase their performance. Water gels can be poured into irregular or wet bore holes to fill all available space with explosives. Most water gels require an explosive booster/primer for detonation; however, water gels that can be detonated by using a blasting cap are also manufactured. Water gels may be packaged in plastic bags/tubes, 1-1/2 to 8 inches in diameter, or may be found in plastic jars/containers.

b. Smokeless Powder

(1) Smokeless powder is the standard propelling powder for small arms, cannons, and in a slightly different form, some rockets. Smokeless powder is predominantly gun cotton (nitrocellulose) with additives to improve performance. This material is dissolved in a mixture of ether or alcohol and then extruded into small diameter cylinders/rods. These cylinders/rods are cut into short lengths and dried to evaporate the solvents. Generally the smaller the size of the smokeless powder grain the faster is the burn rate. The grains are usually coated with graphite for small arms applications and appear gray/black. Larger grains will normally appear to be brown to reddish.

(2) Unconfined, smokeless powder burns. The rate of burning increases with both temperature/pressure. For this reason, it is frequently used in fabricating pipe bombs.

Detection is dependent on the degree to which the material is sealed and the age of the material.

c. Time Fuse. Time fuse is a green fiber cord with yellow markings wrapped in water proof covering. It contains black powder, a mixture of 74 percent potassium nitrate, 16 percent charcoal, and 10 percent sulfur. Time fuse is very sensitive to electro-static discharge and can be ignited by an ordinary match. Black powder is frequently used in fabricating pipe bombs since it will explode under the slightest confinement. Special care should be taken to ensure time fuse does not come in contact with water/moisture.

d. Composition C-4 Plastic Explosive. C-4 is a composite explosive containing 91 percent RDX and nine percent non-explosive plasticizers. C-4 is white to light brown in color and does not stain the hands. C-4 is often used in letter bombs as it can easily be shaped to fit the letter. Even though only a small amount of C-4 is used, it has such a strong odor that detection should be relatively easy. C-4 is available as a block demolition charge in 1-1/4 or 2-1/2 pound blocks.

e. Trinitrotoluene (TNT). TNT is the most common military explosive. Alone or as a part of a composite explosive, TNT is widely used as a booster, bursting, and demolition charge. TNT is a standard explosive that serves as a basis for rating other explosives. The TNT most likely to be found will be in 1/4, ½, or 1 pound blocks. When TNT is removed from its cardboard container, it is light yellow to light brown in color. TNT gradually turns dark brown after several days of exposure to sunlight. Some TNT may also be gray in color because of the addition of graphite during manufacture. TNT can be absorbed through the skin, causing headaches, anemia, and skin irritation.

f. Detonating Cord. Detonating cord contains 42 - 50 grains of PETN per foot. The white crystalline powder core is wrapped with a six-layer sheath of textile and plastics with an outer sheath of yellow/olive drab plastic. Detonating cord will detonate at a speed of approximately 21,000 feet per second. It is supplied in rolls and coils and is approximately 0.20 inches in diameter. Detonating cord may be tied around, threaded

through, or knotted inside explosives to cause detonation. Detonating cord is also used when a simultaneous detonation of a number of explosive charges is planned and it's not practical to use electrical detonators for this purpose. A single line of detonating cord can be laid out from the firing point in a path that will pass near all of the explosive charges. Feeder lines of detonating cord are used to connect between the charges and the main line. A blasting cap is attached to one end of the main line of the detonating cord to initiate detonation of all charges simultaneously. Other types of detonating cord contain from 10 - 400 grains of PETN/RDX per foot (diameter varies accordingly). The outer sheath may be plastic/textile in solid/striped color and is manufactured under brand names such as "Primacord," "Detacord," "Detonating Fuse," "Cordeau Detonant," or "Cord Tex."

g. Ammonium Nitrate Dynamite. This dynamite contains approximately 31 percent ammonium nitrate, 16.5 percent nitroglycerin, 38 percent sodium nitrate and the balance is a sulfur/starch mix. It is equivalent to 40 percent nitroglycerin dynamite and has a detonation speed of approximately 11,000 feet per second. When the wrapper is removed, ammonium nitrate dynamite appears light tan to light brown in color and has a pulpy, granular, slightly moist, oily texture. It has the same odor as nitroglycerin dynamite because of its strong nitroglycerin content. It may produce severe headaches after a short period of contact. Although aspirin and other pain relievers have little effect on such headaches, some relief may be obtained by drinking black coffee. The dynamite is provided in 8-inch by 1-1/4 inch diameter sticks protected by a waterproof wrapper.

h. Nitroglycerin Dynamite. This dynamite contains approximately 40 percent nitroglycerin, 45 percent sodium nitrate, and the balance is wood pulp, having a detonation speed of approximately 18,000 feet per second. When the wrapper is removed, nitroglycerin dynamite will appear light brown in color and will have a pulpy, granular, slightly moist, oily texture. Because of its nitroglycerin content it may produce severe headaches after a short period of contact. Although aspirin and other pain relievers have little effect on such headaches, some relief may be obtained by drinking black coffee. The dynamite is

pulpy, granular, slightly moist, oily texture. It has the same odor as nitroglycerin dynamite because of its strong nitroglycerin content. It may produce severe headaches after a short period of contact. Although aspirin and other pain relievers have little effect on such headaches, some relief may be obtained by drinking black coffee. The dynamite is provided in 8-inch by 1-1/4 inch diameter sticks protected by a waterproof wrapper.

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NOTE: Nitroglycerin and ammonium nitrate dynamite should be rotated 180 degrees, within their respective containers, on a monthly basis to prevent exudation/crystallization of the nitroglycerin and base materials.

i. Sodium Chlorate/Potassium Chlorate. Sodium/potassium chlorates are substances which can be used in improvised explosive devices (IEDs). These chlorates are available through pharmaceutical or chemical supplier. The strength/odor is affected by exposure to air or moisture. Chlorates used for training need to be replaced frequently (about every 3 months) because of their rapid loss of odor. Dispose of old chlorates per local SOPs. Sodium chlorate/potassium chlorate may NOT be stored with the MN01 kit.

5-10. EDD Training Safety Procedures. The following training

c. Prior to training, the fire department should be notified of the training location, and amount/type of explosives to be used. There shall be a minimum of four appropriate fire symbols posted around the training area so that they are clearly visible from all approach roads used by fire fighters. An appropriate type fire extinguisher (type B/C) will be readily available in the training area.

d. Personnel handling explosive training aids shall wear disposable "food service" type gloves to assure that the explosives are not contaminated by other explosive materials and to prevent nitroglycerin absorption into the skin. A different set of gloves should be worn for each type of explosive component. Avoid contacting the exterior surface of the M19A1 storage/transfer boxes with the gloves.

e. Smoking is prohibited within 100 feet of explosives used in training/trials.

f. Personnel not actively involved in training exercises shall be evacuated to a minimum of 100 feet from the site of the explosives.

g. Blasting caps, squibs, explosives detonators, or any other type of initiator/device shall not be in the training area.

h. Explosive training aids will not be placed near heat or spark producing items, i.e., electrical wiring, radiators, electric heaters, heating vents, or any other source of potential initiation.

i. Explosive training aids will not be concealed in metal containers during proficiency training/trials. Inadvertent initiation could produce fragmentation of the metal container.

j. Training aids will be in place for the minimum time necessary for required odor dispersion, search, and recovery. Collect training aids <u>immediately</u> after the training period.

k. MWDs shall not be allowed to touch/pick up any explosive training aid.

l. Training aids will be kept under constant surveillance.

m. Warning signs will be posted 100 feet around the perimeter of the training area. Wording should be in white on a red background. Signs should read: DANGER - MILITARY EXPLOSIVE TRAINING IN PROGRESS - KEEP OUT. If located in a foreign country, wording should also be in the language of the host country.

n. When explosive training is conducted in vehicle parking areas, entrance and exit points to the area will be secured/monitored. The area selected should have the least amount of pedestrian/vehicle traffic to reduce disruption of the training evolution.

o. Personnel involved in planting explosive training aids will record the exact location of each aid planted.

p. Upon completion of training, and prior to departure from the training area, the recipient of the training aids shall conduct an inventory of all training aids.

5-11. Storage Requirements. Explosives will be stored per reference (c). If appropriate existing facilities are not available for storing Department of Defense hazard Class/Division 1.1 and compatibility group D explosive materials, the procurement, placement, and use of a portable explosive magazine may be authorized.

a. Portable Magazine Procurement. All portable explosive magazines are procured through a single point for all Navy applications. For further information for the procurement of portable explosive magazines and the installation of the high security lock contact:

Crane Division
Naval Surface Warfare Center
Code 3046
Crane, Indiana 47522-5030
DSN 482-5860 or commercial (812)-854-5860

b. Placement of Portable Magazine. The portable explosive magazine shall be placed/positioned per reference (c). Although these magazines are physically capable of being moved, once site approval has been granted it cannot be moved/relocated without new site approval.

5-12. Primary and Alternate Custodians. Primary and alternate custodians shall be designated in writing by the security officer/provost marshal. Original letters of designation will be maintained in the explosive training aid accountability folder. There shall be one primary custodian and as many alternates as deemed necessary.

5-13. Explosive Training Aid Accountability Folder. The primary/alternate explosive custodians are required to maintain an explosive accountability folder to keep a record of all qualifications, certifications, designation letters, etc. The accountability folder shall be maintained in the following order:

a. Primary custodian letter of designation.

b. Alternate custodian letter of designation.

c. Person(s) designated to handle explosive training aids.

d. Copies of explosive drivers license, state drivers license and medical certificate of all qualified personnel.

e. EOD annual safety briefing letter of attendance.

f. Copies of certification/qualification forms, signed by the board chairman, for all personnel authorized to handle explosives.

g. Semi-annual/change of custodian inventories.

h. Explosive shipping/custody documents.

i. All explosive correspondence in/out.

5-14. Daily Issue/Return Log. The primary custodian will maintain a daily issue/return log to record daily transactions involving explosive training aids. This log should be kept in a bound log book, such as NSN 7530-00-286-8363, or equivalent. The daily issue/return log will be prepared in the following manner:

a. The left hand side of the book will contain the following check-out entries: Date/Time Out; Type of Aid; Quantity; Custodians Printed Name and Signature; Recipients Printed Name and Signature.

b. The right hand side of the book will contain the following check-in entries: Date/Time In; Type of Aid; Quantity; Printed Name and Signature of Recipient; Printed Name and Signature of Custodian; and Remarks. The remarks column will be used to make any entries involving the explosive training aids, i.e., periodic inspection results, final disposition, etc.

c. Explosives failing the inspection performed per reference (c) shall not be moved from the inspection location/used in any manner. Notify EOD for disposal. Explosives that are no longer serviceable for training purposes shall be turned into the nearest ordnance facility, and log entries made to the effect.

5-15. Inventories

a. Explosive training aids are to be inventoried semiannually and upon change of primary/alternate custodian. All training aids shall be inventoried and total amount verified by a disinterested party (EOD personnel are recommended to satisfy this requirement due to their ability to recognize degradation in explosives). The disinterested party must be an individual senior in grade to the primary custodian, E-7/GS-9 or above.

b. Upon completion of the inventory, the disinterested party shall make an entry across both pages of the daily issue/return accountability log book that an inventory was conducted on a particular date and time and any discrepancies noted and sign their name, rank and title. The disinterested party shall forward a letter to the commanding officer stating

that a semiannual inventory was conducted on a particular date and time. The disinterested party shall list all explosive training aids as described in the explosive training aids shipping documents by NALC, type, weight, and quantity on a particular date on the inventory and shall sign the original copy. The original copy shall be forwarded to the commanding officer and a copy shall be given to the explosive custodian for the accountability folder.

c. Any loss of training aids will be reported immediately to the local NAVCRIMINVSERV office and EOD personnel, if available. Notify the MWD program manager, via chain of command, by naval message.

5-16. Transportation Requirements. Explosives will be transported only in government vehicles meeting the criteria under references (g) and (h). Vehicles will be certified as safe for explosive transportation by explosives safety personnel. Only personnel classified as hazardous material drivers shall operate motor vehicles carrying explosives.

a. Before each use, the driver of the vehicle shall inspect the vehicle to ensure that it is in good mechanical condition and safety equipment is in working order. Corrective action of all discrepancies noted will be taken prior to using the vehicle to haul explosives. This inspection should include the following:

(1) The vehicle must have two approved Class B/C (CO_2 or dry chemical) fire extinguishers that are fully charged. One extinguisher shall be mounted on the outside of the vehicle on the driver's side and the other mounted on the inside of the vehicle cab.

(2) All electrical wiring must be in good condition with all connections properly attached.

(3) Fuel tanks/lines must be secure and free of leaks.

(4) Brakes, tires, steering, and other equipment must be in proper working order. Tire inflation pressure should be checked daily and adjusted, if necessary.

(5) Exhaust systems must be free of leaks, oil, grease and fuel.

(6) Explosive "A" (class 1.1) placards must be mounted on all four sides of the vehicle.

(7) A copy of NAVSEA OP 2239 shall be kept in the cab of the explosive vehicle.

b. Each type of explosive material will be transported in its designated M19A1 transfer/shipping container.

c. Explosives will only be transported in the cargo compartment area and will be properly secured with tie-down straps/chains prior to movement of the vehicle.

d. Under no circumstances will personnel/MWDs ride in the cargo compartment with the explosive.

e. Wheel chocks will be used to block the drive axle when the vehicle is parked to prevent the vehicle from rolling.